THE SPECTATOR:

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C. E. BOWERS, heretofore representing THE SPECTATOR Company at Chicago, has ceased to be our agent, and is no longer authorized to transact business for the company. Announcement of his successor will be made at an early day.

NEW YORK city proper is probably as well protected against fire as any city in the world, but there is one point of vast importance which is being overlooked, and that is the 12,317 acres north of the Harlem river known as the annexed district. At present there are only seven engine companies covering that vast territory. This is insufficient, as it virtually leaves an average of 1960 acres for each company to cover. There are at present some 15,000 houses in that district to be looked after, as well as about 74,000 inhabitants. This leaves an average of one fireman to about every 175 buildings and 850 inhabitants.

WE print in this issue a communication from a well-known electrician regarding the unreliability of the automatic fire alarms in use at present. He shows conclusively how easy it is for this system of alarm to be cut out of circuit and its usefulness thereby destroyed. Many instances have occurred in the past in this city where these automatics failed to do their duty by sending alarms when there was a necessity for their so doing, and at other times they have sent in false alarms without any special provocation. Unquestionably there is abundant opportunity for improvement in the automatic system, and until such improvements are made it cannot be regarded as entirely trustworthy.

THE State legislature at its last session having decreed that the first Monday in September of each year should be observed as a holiday, and be designated "Labor Day," Monday last was duly celebrated in this city as such holiday. There was quite a parade of trade organizations, which was reviewed by labor agitators and socialists, and numerous excursions helped the workingman to pass away the day. To business men in general this holiday proved to be a great nuisance, for this is the busy season of the year, the fall trade having opened with considerable briskness and promising to be active for the remainder of the year. Manufacturers are especially anxious at this time to keep their factories running on full time, many of them having to resort to night work to supply the demand for their goods. A holiday occurring at such a time was annoying to them, especially as the objects of such a day of idleness are apparently unknown to anyone. As it has been legalized, however, its observance was enforced upon the banks, causing considerable embarrassment to business men. It is probable that an effort will be made at the coming session of the legislature to repeal this law, and also the law making permanent the Saturday half-holiday that has heretofore been conceded as a convenience during the three hottest months of summer. When business is brisk in the cooler months of the year, the observance of a half-holiday once a week is prejudicial to the business interests of the city. Many dealers announced on the first of the month that their places would remain open for the full day on Saturdays thereafter, but the banks and public offices are compelled under the law to close their doors. This is a nuisance that should be abated at the earliest possible moment.

BY the recent destructive fires at the so-called Chicago Stock Yards, considerable attention has been drawn to the town of Lake, in which these stock yards are really located, and are consequently outside of the jurisdiction of the city fire department. This town, which lies to the south of Chicago, and aside from the stock yards consists chiefly of suburban residences, has lately found its water supply entirely inadequate to its needs, and is now considering plans for getting double the quantity now available. According to The Sanitary News, two schemes are being discussed. One plan is to lay a 36-inch water main to connect with the water-works of Hyde Park, a village situated between the town of Lake and Lake Michigan, the natural source of water supply for the whole country thereabout. The other is to run a five-foot tunnel to the lake direct. The first plan would cost about $500,000, the second somewhat more. The Sanitary News offers several reasons why the first plan should not be adopted. "In the first place," it says, "the water supply of Hyde Park is notoriously inadequate. It is at present quite impossible to secure sufficient water on the second floors to keep plumbing fixtures in decent sanitary condition. With an additional drain upon its resources, both the town of Lake and the village of Hyde Park would suffer. In the second instance, the crib, or intake point, of the Hyde Park water-works is too near the shore, and the water supplied there is often unfit for domestic consumption. It is also reasonably certain that there will be constructed before many years a cut-off from the south branch of the Chicago river to Lake Michigan, both to afford quick access for vessels to the lumber district and lessen the bridge nuisance, and to purify the south branch of the river. When this occurs the tunnels for water supply from localities along shore will have to be extended to a point four miles into the lake. The construction of an independent tunnel is, by far, the best plan, and when Lake gets ready to be annexed to Chicago, she will then come in on a par with the rest of the city, and not with depreciated public improvements."

"IN putting out ordinary fires," says The Cincinnati Price Current, "it is a golden rule to use as little water as possible, for the latter often does more damage than the former. The jet of a powerful engine is as destructive in its way as fire to all perishable articles within a room, such as furniture, pictures and bric-a-brac. Fire protection, like charity, should begin at home. However efficient may be the public service against fire, a single bucket of water properly administered may stop a fire that all the efforts of the brigade would be unable to quench." This is all true enough,

and many a fire has been put out by a cool-headed man, with a pail of water, and nothing more heard of it; but a far greater number have been allowed to spread and do heavy damage through reliance upon inadequate private fire extinguishing appliances, and neglect to give the alarm to the fire department until too late. It is certainly well to use all means at hand to put out a fire as quickly as discovered, but, with a good fire department within easy call, the person who will not at once summon it, as well, is very foolish. In fact, in any of our larger cities, where within two or three minutes after an alarm is rung in an engine may be expected on the spot, the householder who, upon the outbreak of a fire, promptly jumps to the nearest alarm box and pulls the hook, nine times out of ten fares much better than he who monkeys about with hand grenades and such like humbugs for ten or fifteen minutes before calling for aid. Not that private apparatus is to be sneezed at—by no means. As much and as good should be provided as possible; but, although fire protection "should begin at home," any number of cases could be instanced to show the folly of relying implicitly upon home protection, however good of its kind, when the aid of a thoroughly efficient pub'ic fire department is obtainable.

Among the prominent cities that are agitating the question of a better water supply, is St. Louis. The city has been a great sufferer because of the inadequacy of water, and in various large fires that occurred a few years ago this deficiency contributed to swell the losses. There was then an effort made to increase the fire protection facilities, street mains were extended, more hydrants introduced and additional fire apparatus provided. A vast sum of money was expended in these improvements, but the evil is not cured so long as there is a scarcity of water. The St. Louis Examiner says:

> The absolute necessity for an extension of the city water-works has occupied the annual messages and the annual reports of the water commissioner for many years. St. Louis has for years sat stolidly under the disgrace of a system of water supply which would not adequately meet the requirements of a city of 250,000, while her population has climbed to 500,000. During every year, for the last ten or fifteen years, there have been days, annually increasing in number, when the failure of the stock of water has produced almost a panic, and during which the collector of water rates has been compelled, in the interest of public safety, to resort to measures of great harshness in detecting and preventing waste. If one of the measures of the civilization of a community be a supply of water, free, abundant and good, for all its citizens, then St. Louis is very far from being thoroughly civilized—the water supplied to her citizens being very poor, very dear and very scarce. If one of the essential conditions of a community's sanitary well-being be an abundant supply of water, then St. Louis, in the most critical seasons, lacks that condition of well-being. We hope the people of St. Louis will thrust aside the demagogue for a moment, and listen to the appeals of the chosen guardians of her interests for a more liberal and an unfailing supply of purer water. Her sanitary interests call for it; her manufacturing interests demand it; her commercial interests require it; we must have it, and the sooner we have it the better.

The destruction by fire of the Theatre Royal at Exeter, Eng., on Monday evening last was due, as is universally the case in theatre fires, to the ignition of the scenery used upon the stage. In this instance a drop scene is said to have fallen upon the stage in such manner as to become ignited, when the flames spread with the greatest rapidity, setting fire to all the contiguous scenery and filling the auditorium immediately with a dense smoke, creating, of course, a panic in the audience at once. In the rush made for the exits many persons were thrown down and trampled under foot. The entire building was soon a mass of flames, and in spite of all efforts for its preservation was speedily destroyed. The scene during the fire beggars description. From all parts of the house frightened men and women sought escape, many reaching the windows and jumping to the street, while others screamed for help. A large number perished in the flames. About 140 bodies had been taken from the ruins by the next morning, and it is believed that other bodies will be recovered. Such loss of life is frightful to contemplate, and that it should occur seems wholly unnecessary. Theatre fires almost invariably originate upon the stage, and if this was in every instance protected by automatic sprinklers, and a sky-light provided for the stage through which the smoke and flames might escape, it is believed that loss of life would seldom occur. Automatic sprinklers, as has been demonstrated, work satisfactorily in large manufacturing establishments, cotton, woolen mills, etc., and there is no reason for supposing that they would not work equally well upon the stage of a theatre. They could be so arranged as to work automatically or by hand, so that at the first appearance of fire a deluge of water could be thrown upon the scenery and stage, which would effectually drown out the flames and prevent disaster. The loss of life at theatre fires generally occurs in consequence of the panic created among the audience. The panic is due largely to a knowledge that the means of exit are inadequate, and a rush consequently occurs for the doors, in which the weakest meet with disaster. When theatres are constructed with the auditorium and the stage upon the ground floor, and numerous exits provided in all directions, calamities of this kind will become impossible. As at present constructed, the greater portion of every audience in a theatre or house of entertainment is on the second, third and even fourth floors, and from these various portions of the house the stairways lead to a common lobby, from which egress to the open air is provided. When an emergency arises, the stream of humanity pouring from the various floors of the house fill this lobby, and it is inevitable that some should be crushed to death. In some places of amusement in this city portions of the audience are located as high above the street as the fifth, sixth and even seventh story, these places being reached by narrow winding stairways difficult to ascend or descend even in the day-time. If such great calamities are to be averted, there must be a complete reform in the construction of places of amusement and in the degree of fire protection provided.

SYSTEMATIC INSPECTION OF RISKS.

We print in another column of this issue a communication from a well-known Western underwriter upon the necessity of a thorough inspection of risks by insurance companies. We have heretofore published communications from the same writer upon this subject, and his views are such as cannot but be commended by all underwriters. He regards careful inspections as a matter of absolute necessity for the safety of the companies, and suggests that they should unite to organize inspection bureaus, wherein experts should be employed, and the information obtained by them made available to all. In these days of numerous fires and excessive losses, the salvation of the companies seems to lie in the prevention of fires, and it has long been conceded that the best way to secure this is by ample and frequent inspections. Efforts have been made to secure such inspections in some places,

but the trouble has been that the companies have paid but little heed to the reports of the inspectors, but continue to insure property condemned by them as being in an unsafe condition, without any material advance in rates. Under a proper organization of companies for inspection purposes, it ought to be impossible for a propertyowner, whose risk is reported against by a competent inspector, to obtain insurance upon his property at any price. A little "boycotting" of this kind applied to the careless and reckless owners of property would very speedily bring them to their senses, and induce them to adopt such means of fire prevention as the inspector should recommend. The demoralization now existing in the underwriting business effectually precludes the possibility of securing any sort of an effective organization or combination among the companies, but should the time ever come when reforms in practices become possible, this plan of providing for inspections will doubtless be adopted. The heavy losses to which the companies have been subjected of late should be sufficient to impel them to adopt measures for their protection in the future. But it is doubtful if anything can be done for the present.

We have had some discussion with The American Architect of Boston, relative to the responsibility of architects for the losses that occur. We have maintained that the architects were largely responsible for the cheap and flimsy methods adopted in modern construction, and our contemporary took us to task quite severely for such statement. We persisted, however, in our view of the case, and cited some extensive fires in this city that were due largely to faulty construction. Referring to the statement so frequently made, that no matter how bad the risk, companies will be found that will insure it for its full value, The American Architect says:

> We would like on our own account to add another observation to this, to the effect that the insurance companies, while they insure these structures at rates which they know to be inadequate to the risk, and without a pretense at inspecting them to see if they cannot be made a little less dangerous, take advantage of the ignorance of the public in such matters to charge enormously profitable rates on the better risk, so as to bring the average up to a remunerative rate, although by doing so they simply rob the prudent, conscientious owners to reward the unscrupulous speculators who, by playing one agent against another, know how to get the cheapest insurance on their flimsy structures.

The Architect quotes the statement of another, that "instead of striving to improve the character of the structures in the city, the underwriters virtually offer a premium for inflammability and poor construction," and adds:

> This is almost a literal repetition of expressions which we have seen both in English and French journals, but the insurance companies have as yet shown only the feeblest consciousness of what is beginning to be the widespread opinion of their course. Here and there an underwriters' association has some rules printed and distributed, and in New York for some years a faithful and efficient officer looked out for the security of construction, much to the advantage of the companies which he represented; but these efforts are soon relaxed, and the business relapses into its old condition. Then heavy losses come, and the underwriters wake from their sleep, and begin to bewail themselves, and berate the architects, who really, by the pains which they take to supervise the work under their charge, and the good principles of building in which they are trained, probably save to the underwriters every year a sum larger than the united income of their whole profession. As we have often said, if the underwriters cannot protect themselves against losses by inflammable construction no one else can do so. The whole system of building is practically in their hands, to change or direct as they will. If they choose to insure goods in battened sheds at the rame rates as those in fireproof buildings, they may be certain that the goods will soon be found in the sheds; and if they should refuse to insure anything not contained in fire-resisting structures, a few months would see all mercantile buildings transformed. In any effort which they might make toward the improvement of construction, not only architects, but the best builders, would help them earnestly, but it is useless to expect either architects or builders to do the work against the enormous inertia, or rather, the positive opposition of the insurance interest. Not long ago we had the honor of being consulted in regard to converting a large building into a fire-resisting structure by the simplest efficient means. It was a building where no money could be afforded for the gratification of a whim, and after calculating the approximate expense of the wire lathing and fireproof partitioning, we inquired the cost of insurance on the building in its actual condition. The premium paid on the building as it stood was only a fraction of the interest on the cost of transforming it, and we considered it our duty to point out that the wisdom of the underwriters had made the proposed change financially very injudicious, and the idea was accordingly abandoned. With people who have to direct the investment of large sums of money, for themselves or others, this sort of calculation is an everyday experience. So far, most of the efforts to make the cost of a fire-resisting construction approximate the capitalization of the insurance premiums saved by it have been made by the mill mutual companies and the architects, and they can do no more. If the underwriters wish to have fireproof building become more general, they alone can make it so.

While the above is true to a certain extent, it is opposed to the theory of fire insurance. Insurance companies are not supposed to trouble themselves about the character of a risk, but to charge a rate for insuring it commensurate to the hazard. No matter how bad a risk may be, it is insurable provided an adequate rate is made, but the trouble lies in the fact that the competition between companies is so great that they ignore the theories as well as the principles of their business and are willing to cut each other's throats at any time in order to secure any premium, however inadequate it may be. It is because of this unbusiness-like competition that bad risks are insured at all, or that other bad practices exist. If the companies would but live up to their motto and "charge for the risk as they find it," propertyowners would very soon learn that it is not only the part of wisdom, but of economy, to erect better buildings and to take proper care of them, eliminating the fire hazards to the greatest possible extent. While it is not to be expected that all buildings shall be fireproof—for interior work is generally inflammable and will burn to a greater or less extent—it is possible to secure slow-burning construction to a degree that will make the spread of flames almost an impossibility. This, however, will never be accomplished until, as our contemporary suggests, insurance companies cease to insure bad risks and make it an object for propertyowners to erect a better class of buildings and to exercise due care over them. When the time comes that careful and thorough inspection is required for every risk, and the companies are governed by the reports of the inspectors whom they employ, we shall expect to see the cheap and flimsy structures we have so frequently spoken of classed among the uninsurable. But the millennium is not here yet, and until it reaches us we look for little reform in underwriting practices.

—The success recently attained in securing an abundant flow of water from artesian wells along the coast of the Gulf of Mexico is a matter of great economic importance to the inhabitants of the Gulf States as well as of scientific interest. At Galveston there is a well about 900 feet deep, which delivers some 70,000 gallons a day. The water contains several compounds of sodium and calcium, silica and iron. It is adapted for steam and other industrial uses, and has acquired quite a reputation as a medicinal beverage, being not only consumed at the well, but kept on draught by the dispensers of mineral waters. It is a special boon to Galveston, which, being situated on an island in the sea, has no surface water supply save what is derived from the rain. Moreover, it has taught a valuable lesson to all the people along the coast. Water can be obtained anywhere in that region by boring.

COMMUNICATIONS.

A COMBINATION OF COMPANIES FOR INSPECTION OF RISKS DESIRABLE.

[To the Editor of The Spectator.]

Insurance companies doing business in this country paid out something like $67,000,000 for losses during the year 1886. Of this sum about $50,000,000 was disbursed by companies licensed to do business in the State of New York for fire losses. These figures cover payments for losses from fires of known, guessed and unknown origin. That a very large proportion of these fall into the latter category is well known to every experienced underwriter. The immensity of the interests involved would appear to make it worth while to labor to devise means by which the causes of these calamities could more frequently be ascertained. It would seem that the more thorough the knowledge of the sources of disaster, the more certainty there would be of avoiding it. Yet is it because of a lack of knowledge on these points that this waste continues?

The fires originating from a novel source are few. How many in ten years are known to have sprung from causes not previously considered, and of which propertyowners and insurers have not had ample warning? Probably an insignificant number; and if this is true, then we are now about as well prepared to protect ourselves, as we would be with more information in the matter. We have theory enough to work upon, and the difficulty must be in the lack of intelligent and energetic use of the means already at hand.

What are we to do to restrain this excessive volume of loss, which increases at least as rapidly as to keep pace with the growth of the country, f indeed the ratio is not actually augmenting? Intelligent estimates give the percentage of loss by preventable fires at a high figure—some say as much as ninety per cent of the whole—"preventable" by the intelligent attention and vigilant efforts of the whole community. The companies must have the assistance of the authorities, State, city and village; public sentiment must be educated to an appreciation of the need of greater precautions against fire, and their enforcement by wise ordinances.

The initiative work and the lion's share of it must, for a long time, if not always, fall upon the insurance companies themselves. They have the trained organization, they have the stake, and through them must come the first impulse. It would not be for their interest that the work indicated should be done through any other means. If one-half the fire loss is preventable, then the companies alone can, by proper organization, save at a reasonable estimate at least one-fourth of it. Twelve and one-half millions added to the profits of the insurance business, to say nothing of as much more incidentally saved for propertyowners, is very well worth considering. One-half that amount would be a very fat return for the investment required to carry out the work.

It is hard to find out the origin of a fire after the materials first ignited are consumed and the ashes buried in debris. Suppose that the companies should make constant efforts in each case to, so to speak, discover the origin of a fire before it occurred?

Imagine a thoroughly organized bureau of inspection in each of a system of departments, covering the land and devoting itself tooth and nail to the discovery and eradication of the sources and conditions whence fires are known to originate. Having no interest in the success of one company above another; not interferring with rates, although giving valuable information to tariff associations; using its whole force and energy with propertyowners, with agents, with fire departments and with town and State authorities to the introduction of such vigilance and such methods of construction and extinguishment as will tend most directly to reduce this drain upon the resources of the country. Who could do this work as intelligently and economically as the insurance companies, and to whom does the opportunity beckon as alluringly as to them?

Five hundred thousand dollars spent in this way would, it is safe to say, bring an annual profit of at least $5,000,000, and instead of regarding the insurance companies with suspicion, the public would quickly perceive the benefits derived from their efforts. There is nothing of the "Mulberry Sellers" character in this project. It is as legitimate as for a merchant to discount his own bills, and it will be found that by the time the system is in thorough working order and the business has had time to adjust itself to the new arrangement, there will be very little, if any, additional outlay required beyond what present methods demand.

The benefits of the measures proposed will be shared by the public, which will approve and gradually co-operate therewith. They make a platform upon which all companies can stand without jostling each other. Their interests will not clash. It is the best thing to do. It will pay. Why not begin it at once?

E. F. Chapman.

Cleveland, O., August, 1887.

AUTOMATIC FIRE ALARMS.

[To the Editor of The Spectator.]

Are not the insurance companies and propertyowners of this city and those of others in the United States mistaken in their valuation of the so-called "automatic" electrical fire alarm systems at present applied, as fire detectors? Is it not fancied security only when trusting to such antiquated and unreliable apparatus, easily deranged as they are by accident or incendiary? Are there hidden reasons why they are fostered, and why no reward is offered as an incentive to stimulate and encourage the inventive genius of our country that more efficient and trustworthy ones may be produced? Do insurance companies and propertyowners realize that destruction by fire of $100,000,000 worth of property per annum is a dead loss to the country, aside from being an irredeemable one to themselves? Are their eyes closed to the fact that precious lives are yearly sacrificed to the dread fire fiend, which is more or less due to the reliance and blind faith put in the various contrivances recommended by themselves? Does it not powerfully appeal to their own sense of self-preservation that, if "their own losses by fire in the New York fire patrol district are $5,000,000 for seven months during the last year," which is an excess of nearly half of the previous one, something more reliable is required as a fire detector? Is not the Board of Fire Underwriters, with their co-operators, the fire commissioners, and the numerous *attaches* of the fire department, the product of the insurance companies through legislative enactment, and are they not in some respects servants of the people? If we may judge at all, we must conclude that an answer to the last query should be—they are; and taken as one body are potentates. They recommend and hold, in their might, the power to adopt such devices and means of protection as is best calculated to prevent fires. The various contrivances for such uses are brought under the lens of their examination, and must stand or fall in accordance with their will. None have the right to dispute or question the exercise of their judgment, and the citizen's life and his property are largely dependent on them for preservation. The extraordinary advances made in electrical knowledge and construction of apparatus in the field of electricity, during the last fifteen years, causes one who is in any way versed in the art to look back on old devices, considered perfect only a few months ago, and view them as decrepit fossils of a bygone age; that any such should have place or live at all but in one's memory, seems ridiculous; and to longer tolerate them indicates that lunacy or worse reasons must keep them in existence. Let us not mince matters. It is always best, and a mark of honesty, to call things by their proper names, and credit them for just what they are, even should they be clothed in fine linen or be venerable in gray hairs.

It is beyond contradiction to assert that $74,000,000 of the most valuable property in the city of New York (saying nothing of the possible loss of life) "in case of fire," is left entirely to chance for its safety through a misplaced confidence in the reliability of the present automatic electrical fire alarm systems. This delusive reliance is so great, that other old and tried safety measures have been almost or entirely removed, or at least notably relaxed, where these systems are introduced.

Now, for the first time, let us bring to the light one as a sample of these so-styled automatic fire protectors, and let us look at its dimensions. Let us cast on it the ever-penetrating rays of the lamp of truth, weigh it in the balance of rigid scrutiny, and ascertain by what right or license they are styled automatic, and if found wanting, deprive them of the insignias they disgrace, strip them to the bare buff, and drum them all out of camp. We should place good and efficient guards over the lives and property of our citizens; we should know them to be diligent, always at their posts, wide awake and ever ready to transmit the password of threatened danger to the officer in command at headquarters. In fact, be in every sense reliable.

The automatic electrical fire alarm systems, as at present applied, consist of a main line circuit embracing a central station; each building is equipped with "thermostats" placed near the ceilings, and a signal box

substantially like those employed by our messenger service; the thermostats and signal box are connected by wires to the main line wire circuit. Another wire is also employed, and is connected with the earth. At the central station are electrical instruments, employed for the purpose of receiving the signal when turned in from the building. If everything is new and in order, notice of fire is sent to the central station over the working circuit by reason of the box instrument having been set in motion through the releasing of its revolving mechanism; the movement of the box having been held in check by a magnet during the normal condition of the apparatus, which acts when the working circuit is closed by a "thermostat" through an abnormal rise of temperature, and thus the building in danger is thereby indicated. The points of contact of the "thermostats" are normally open, but when closed from any cause, the wire connecting the thermostat and box make contact with the earth wire, and consequently an alarm is transmitted to the central station. Deeming it to be unnecessary to give in detail the mechanism of the various apparatus, I conclude the foregoing description sufficient, though brief, to those of ordinary electrical knowledge to understand.

As they appear under the lens of fearless examination. The building being now "protected" is left to itself to work out its own salvation, for it is seldom looked to after that, as the expense attending that part of the business would not warrant such a waste of time. If any part of the apparatus becomes disordered, thereby destroying its vitality, that signifies but little, for "where ignorance is bliss 'twere folly to be wise."

Buildings have been known to stand for ages, until dilapidation and decay required their demolition, and never was a sign of fire in them, except for ordinary purposes; in such the present applied systems could be introduced consistently, and they would do no harm.

Should the wires in the building become broken, or be in contact with the main line in a manner to cut out the "thermostats" or box, or their connections corroded by time through dampness or other causes, thereby rendering them useless, or the thermostats become clogged by dust, dirt or rust, or the ground wire severed, or should they be subjected to any one of the thousand and one other faults to which they are liable; not one announcement, or a sign of one, is sent to the central station as notice of the trouble. They are dumb. Just here let us take special note of one very important matter, which alone should condemn them without judge or jury. If the earth wire, the very jugular of their existence, be severed—although all the other parts in the building remain intact—paralysis takes place immediately, and the temperature of the infernal regions, if applied, could not make it breathe one sound or sign of life. The following statement is taken from the records of one of the best equipped messenger service lines in the Metropolitan district of the fire underwriters of the city of New York: "The yearly 'grounds'—*i. e.*, wires in communication with the ground—removed from their lines foot up 181;" but as their signal boxes work in series over one main line, one accidental "ground" does not affect them.

This being only the number removed, it would be a matter of easy calculation to determine the total number of grounds, approximately, on the lines occuring during the year. Now, a lineman to find and remove them, would average a day's time to each one; therefore, as 365 days constitute a year, and if this number of "grounds" intrude themselves on the main lines of the present applied automatic systems, as they are likely to do, it would be strictly within the bounds of truth to say, that all buildings "protected" by them are unguarded, and consequently at the mercy of possible fire three-quarters of the time. This generous, though unreasonable, vacation accorded these "automatics" as a rest from their yearly duties would seem to be ample, but like all indolent, work-shirking and worthless servants, they demand more leisure, and take it when the building is being "tested" (I will grant that they are at intervals examined). Saying nothing of the annoyance to the occupants of the building being tested, consider the time consumed in this operation; add this to the time already estimated when these "automatics" are on their "vacation," and I ask, would it be out of the way to call it one-eighth more? And further mark you! During the time this "testing" is going on in one building, a signal of fire could not be turned in to the central station from any one of the others any more than the allegorical camel of holy writ could walk through the eye of a needle. Again, after a building has been "tested," what guarantee have we that it is "all right," except the word of the "tester;" and furthermore, suppose that the apparatus becomes disordered shortly after the tester has finished his work—as may readily occur—what then? I leave them to answer who can. Could the "tester" or any conscientious person affirm that the apparatus in a building, "protected" by the present applied "automatics," is in working condition one day after its introduction?

It is unnecessary to call for the testimony of an expert in corroboration of these statements. Why these systems, as at present applied, can support the high sounding title of "automatics" surpasses all human understanding, and I marvel at the impudence of those who so style them, but they are inspected as such by those in authority, a certificate given pronouncing them to be so, and that they are in order, and a rebate allowed when it is as evident as a meridian sun in the unclouded heavens, that the title as conferred is a glaring misnomer, a denial of which would be stretching the truth beyond computation.

J. H. GUEST, Electrician,
NEW YORK, September 5. 181 Pearl street.

NEWS OF THE WEEK.

A Curious Case of Spontaneous Combustion.

ONE of the most curious instances of spontaneous ignition on record is that recently reported to The Iron Age by a Chicago manufacturer of plane bits. For some time a sponge had been used for wetting an emery wheel in his shop, bringing water up out of a water box by capillary attraction, and touching the wheel. It was kept against the wheel lightly by a spring. The wheel was used in grinding very hard steel plates, therefore the sponge constantly wiped particles of steel off the wheel during its revolutions, and it was used in that way until these particles had filled up its cells to a very considerable degree, of course being wet all the time. It was then laid aside, the string being still attached to it together with a little cotton cloth. In time it became entirely dry, lying on and against a couple of pieces of fine wood. After lying unobserved for a week or ten days, it was suddenly discovered one afternoon to be incandescent—in fact, a living coal—and to have set fire both to the board on which it rested and the one against which it leaned. It had burned a considerable portion of the stout twine and the cotton cloth attached to it. All were smouldering, and although flames had not burst forth, they evidently would have done so in a short time, as the room contained a very pungent smell of burning wood. The boards were each burned to the depth of a quarter of an inch and to a width approximating three inches when the incipient conflagration was quenched. The appearance of the charred sponge was not much unlike that of a piece of roasted iron ore, which it differed from, however, very decidedly in weight, being quite light. When broken it exhibited the same characteristics throughout, showing that the fine particles of steel had been thoroughly distributed in its interior. This evident case of spontaneous ignition of an article which had not been saturated with grease or oil, but which consisted of a piece of ordinary sponge, filled with fine particles of steel while it was in a wet state, naturally caused much discussion, but a very plausible explanation of its mysterious behavior has been made by the manufacturer himself, as follows: The particles of steel which were wiped off the emery wheel by the sponge must necessarily have been exceedingly fine, as the steel was very hard. Lodging on the sponge in a wet condition and in constant contact with water, oxidation was active—or, in other words, the particles rusted very rapidly. The fine particles of steel presented an extremely great surface area for such action as compared with their bulk. Under ordinary circumstances, oxidation does not develop sensible heat, but under the peculiar conditions here realized, the usually harmless chemical phenomenon of rusting developed into an actual fire-creating agent, and incandescence resulted. Here was an article which at first sight would seem to be as incapable of spontaneous combustion as an ordinary brick, but which proves to be entitled to rank with greasy rags and oily waste and other well established fire-creating combinations. Had not this burning mass been discovered most auspiciously, a serious conflagration would, in all probability, have ensued, and its cause would have been "unknown."

—The John Hancock Mutual Life of Boston has bought the Richardson building on Devonshire street, and will remodel it for office purposes.

New York City Fire Insurance Premiums.

THE following is a comparison of the returns made to the New York Board of Fire Underwriters of premiums received in New York city by the companies during the first six months of the years 1882 to 1887, inclusive:

NAME OF COMPANY.	1887.	1886.	1885.	1884.	1883.	1882.
New York.	$	$	$	$	$	$
American	52,614	44,792	43,577	41,874	44,390	36,798
American Exchange	4,190	4,537	4,464	4,167	4,211	4,508
Alliance	22,104	------	------	------	------	------
Brooklyn	17,991	18,467	19,123	20,414	19,459	12,162
Broadway	15,262	13,585	14,701	16,582	16,602	17,775
Citizens	46,714	47,437	46,237	50,422	45,658	44,952
City	10,411	13,559	14,855	16,581	11,308	16,416
Clinton	15,063	16,087	15,463	15,301	11,167	12,120
Commercial	------	------	------	26,260	22,637	30,132
Commonwealth	23,677	------	------	------	------	------
Continental	64,274	62,792	62,247	55,976	55,765	57,134
Eagle	32,350	36,368	36,908	35,952	40,292	39,113
Empire City	9,243	10,761	13,429	15,825	14,822	14,336
Exchange	17,997	15,799	17,742	17,452	19,506	17,340
Firemens	10,980	13,980	16,029	17,226	16,358	14,271
Farragut	10,945	12,334	15,433	15,604	18,036	17,995
Fire Association	12,741	------	------	------	------	------
Firemens Trust	------	------	------	7,781	6,348	7,336
Franklin and Emporium	------	------	------	22,572	25,054	17,458
Greenwich	89,423	107,463	105,812	118,752	106,977	194,590
German-American	181,420	169,157	154,562	144,199	121,224	107,851
Guardian	9,743	10,074	8,265	8,420	8,126	8,215
Germania	67,593	63,029	64,141	62,131	48,908	56,915
Globe	32,926	32,394	33,161	31,349	31,821	31,651
Howard	32,077	23,072	25,630	19,755	16,695	18,271
Home	92,368	56,070	61,709	69,528	68,709	57,912
Hamilton	21,706	19,013	20,419	19,900	17,842	15,780
Hanover	56 388	46,950	41,577	41,343	44,802	40,047
Irving	------	------	------	16,509	10,454	8,775
Importers and Traders	------	------	------	------	------	19,029
Individual Underwriters	22,965	7,280	2,065	------	------	------
Jefferson	9,369	10,248	10,971	12,307	14,320	15,696
Knickerbocker	12,064	12,949	15,965	20,047	18,636	14,055
Kings County	8,201	11,367	12,236	12,080	10,493	7,873
Long Island	10,677	16,110	16,641	25,752	30,286	10,919
Lafayette	7,959	8,251	10,343	12,783	13,124	12,079
Liberty	22,178	------	------	------	------	------
Lorillard	------	------	------	------	8,445	11,415
Manhattan	------	------	------	------	------	28,702
Merchants	18,904	25,148	26,728	19,550	19,520	29,550
Mercantile	6,946	7,900	9,186	9,047	9,317	9,043
Mechanics and Traders	------	------	------	22,541	19,520	18,320
Montauk	15,956	17,204	11,640	11,262	10,116	9,169
Mechanics	9,227	26,610	25,742	8,559	7,001	8,018
Manufacturers and Builders	28,224	29,998	33,791	39,386	34,660	26,107
Mutual	67,619	62,756	66,454	65,170	------	------
New York Equitable	11,342	14,104	12,786	17,993	18,666	18,055
New York Fire	14,287	20,409	23,573	33,013	26,513	26,730
New York Bowery	49,773	52,437	50,335	49,918	48,550	48,376
National	23,024	22,786	25,317	26,078	26,911	27,281
Niagara	121,988	120,924	88,239	49,233	36,979	26,286
North River	14,054	12,664	8,792	10,042	10,688	10,655
New York Mutual	------	------	------	------	------	10,137
Nassau	7,650	7,320	7,450	7,306	7,180	7,936
Phenix	108,721	110,302	80,217	53,378	55,082	39,918
Pacific	27,617	27,200	28,161	31,021	31,445	29,673
Park	16,542	19,722	21,041	21,699	21,534	19,486
Peoples	15,415	15,159	15,685	15,570	17,309	16,560
Peter Cooper	11,524	10,017	11,715	12,269	12,216	12,955
Reassurance	------	10,016	8,364	------	------	------
Rutgers	9,533	11,875	10,422	13,016	12,789	14,389
Relief	------	------	------	------	------	13,257
Stuyvesant	16,848	20,716	20,305	20,886	21,732	19,312
Standard	10,161	10,566	11,834	12,309	13,178	9,375
Star	------	------	29,602	30,506	29,920	20,964
Sterling	13,414	13,829	14,259	14,215	15,659	17,046
Tradesmens	------	------	------	------	------	15,384
United States	16 042	15,295	18,076	15,402	15,162	10,164
Williamsburgh City	38,363	41,172	70,181	69,561	53,609	44,542
Westchester	53,911	50,036	22,900	23,056	26,546	26,531
New York State.						
Albany, Albany	2,251	4,683	5,599	5,760	5,305	5,398
Commerce, Albany	3,769	5,792	6,139	7,754	7,051	5,382
Buffalo, Buffalo	------	------	------	5,877	4,799	------
Glens Falls, Glens Falls	12,761	12,652	10,290	9,179	7,135	6,874
Rochester German, Rochester	5,646	9,757	12,493	9,614	10,260	11,041
Watertown, Watertown	------	------	------	------	------	15,768
Buffalo German, Buffalo	7,976	10,852	11,426	10,025	9,483	9,505
Agricultural	299	------	------	------	------	------
California.						
California, San Francisco	12,636	11,074	9,854	5,321	1,739	------
Commercial, San Francisco	7,071	7,367	8,523	11,069	------	------
Firemans Fund, San Francisco	13,210	8,008	12,708	13,143	13,396	17,810
Home Mutual, San Francisco	4,126	7,951	5,257	1,822	------	------
Sun, San Francisco	819	1,328	1,516	4,316	------	------
Union, San Francisco	12,929	14,558	8,584	------	------	------
Anglo-Nevada	15,269	------	------	------	------	------
Connecticut.						
Hartford, Hartford	14,747	14,387	16,128	16,849	16,872	17,750
Ætna, Hartford	37,946	38,996	39,983	45,135	46,185	47,066
Connecticut, Hartford	15,870	16,181	16,102	18,877	14,447	18,159
National, Hartford	------	------	------	------	5,840	7,123
Phœnix, Hartford	10,836	11,271	12,913	13,135	12,992	12,647
Orient, Hartford	10,256	7,796	7,346	6,053	------	5,163
Security, New Haven	5,460	6,850	7,908	6,657	5,816	6,641
Meriden	5,625	------	------	------	------	------

NAME OF COMPANY.	1887.	1886.	1885.	1884.	1883.	1882.
Illinois.	$	$	$	$	$	$
Traders, Chicago	12,566	3,012	7,847	11,131	6,562	5,165
Packers and Provision Dealers	3,353	------	------	------	------	------
Kentucky.						
Falls City	2,861	3,240	------	------	------	------
Louisville Underwriters	6,048	6,183	------	------	------	------
Louisiana.						
Factors and Traders	5,688	876	------	------	------	------
Mechanics and Traders	4,156	2,358	------	------	------	------
Sun Mutual	4,836	1,256	------	------	------	------
New Orleans Ins. Co., N. O.	------	------	------	------	------	------
Teutonia	4,615	------	------	14,692	21,122	22,359
Massachusetts.						
Mercantile, Boston	7,373	7,901	10,921	3,247	1,767	1,639
American, Boston	8,599	8,274	13,080	12,723	11,932	7,831
Springfield Fire and Marine	10,550	10,846	11,797	11,393	12,146	12,302
Eliot, Boston	6,585	7,015	4,401	7,082	8,286	7,641
Franklin, Boston	------	------	------	------	------	6,202
Manufacturers, Boston	------	------	------	66,325	24,389	36,634
Washington, Boston	15,977	18,633	20,704	21,578	8,796	7,641
Shoe and Leather, Boston	------	------	------	12,539	8,286	7,641
Prescott, Boston	7,352	6,586	4,401	7,082	------	------
North American, Boston	7,352	6,586	4,401	7,082	4,183	4,429
Neptune, Boston	7,352	6,586	4,401	7,082	8,286	7,641
First National, Boston	------	------	------	------	------	4,881
Firemens	5,537	3,238	------	------	------	------
Boylston	8,476	------	------	------	------	------
Minnesota.						
St. Paul Fire and Marine	8,139	9,854	11,106	6,872	6,163	6,716
Ohio.						
Mercantile, Cleveland	4,342	4,898	6,195	6,754	------	------
Firemens, Dayton	3,767	6,155	6,118	6,600	5,995	2,095
Citizens	7,339	7,575	------	------	------	------
Franklin	3,429	3,410	------	------	------	------
Amazon	6,094	6,591	------	------	------	------
Fidelity	3 944	------	------	------	------	------
Michigan.						
Detroit, Detroit	4,508	3,674	4,929	5,622	3,044	2,707
Michigan, Detroit	4,895	5,680	8,048	7,151	3,306	------
Grand Rapids	2,540	------	------	------	------	------
Pennsylvania.						
American, Phila	20,648	19,438	18 999	19,646	18,765	13,245
Pennsylvania, Phila	15,590	16,340	17,421	18,457	18,654	15,017
Ins. Co. of N. A., Phila	44,034	42,471	20,864	23,673	24,685	22,207
Ins. Co. of State of Pa., Phila	10,520	7,419	6,029	8,838	9,615	8,813
Franklin, Phila	6,344	7,214	8,896	8,999	8,965	8,613
Girard Fire and Marine, Phila	4,980	4,638	3,372	------	------	------
Fire Association, Phila	31,020	30,975	30,325	31,218	32,745	21,025
Ins. Co. County of Phila	10,258	9,318	9,258	10,998	------	10,178
Union, Phila	------	------	------	------	5,760	4,604
Armenia, Pittsburgh	2,965	2,728	------	------	------	5,849
United Firemens, Phila	11,205	11,139	11,789	9,388	8,086	6,923
German, Pittsburgh	7,443	9,755	10,885	8,297	7,186	6,084
Peoples, Pittsburgh	6,844	7,905	9,794	7,002	------	------
Boatmens, Pittsburgh	8,016	9,653	10,746	8,120	5,099	4,351
Farmers Mutual, York	2,738	5,974	9,187	6,640	5,242	5,635
Citizens, Pittsburgh	9,079	11,399	10,915	7,321	3,149	1,522
Mechanics, Phila	11,605	12,718	12,360	11,057	7,988	------
Spring Garden, Phila	12,212	10,628	11,374	11,629	7,128	------
Pennsylvania, Pittsburgh	7,072	8,942	9,004	6,911	5,509	------
Reading, Reading	5,860	4,038	5,997	4,731	------	------
Manufacturers and Merch., Pitts.	5,499	5,636	7,213	2,460	------	------
Western, Pittsburgh	7,509	7,908	8,158	------	------	------
Reliance, Phila	11,090	12,718	8,764	------	------	------
Rhode Island.						
Providence-Washington, Prov	12,560	11,958	8,378	33,842	33,193	22,815
Merchants, Providence	7,433	6,205	7,230	7,193	7,115	5,118
Atlantic, Providence	2,295	3,925	3,854	5,485	6,479	6,393
Equitable, Providence	7,967	6,725	7,704	7,203	7,210	5,239
New Jersey.						
Merchants, Newark	14,805	14,890	16,252	16,349	17,664	22,431
American, Newark	7,315	6,162	7,433	7,202	6,002	4,211
Peoples, Newark	------	------	------	------	------	7,667
Firemens, Newark	8,808	8,559	9,384	9,693	7,945	5,561
Newark, Newark	9,871	11,239	11,999	12,664	11,550	9,643
Newark City, Newark	------	------	------	------	------	8,072
Jersey City, Newark	2,806	2,518	------	------	------	------
Missouri.						
Citizens, St. Louis	6,006	5,497	5,955	------	------	------
American Central, St. Louis	6,461	10,345	12,177	13,018	6,235	6,778
Marine	3,728	3,963	4,287	------	------	------
Wisconsin.						
Northwestern Nat., Milwaukee	3,227	3,775	4,181	4,856	4 390	3,537
Concordia, Milwaukee	6,519	7,391	6,927	5,698	------	------
Milwaukee Mech., Milwaukee	6,562	6,760	5,779	3,137	------	------
Maryland.						
Firemans, Baltimore	5,137	6,624	6,962	6,900	4,716	4,462
National, Baltimore	------	------	------	------	------	10,349
New Hampshire.						
New Hampshire, Manchester	9,113	12,119	12,129	7,278	7,761	7,105
Granite State, Manchester	5,038	3,874	------	------	------	------
Peoples	5,434	5,232	------	------	------	------
Great Britain.						
North British and Mercantile	33,645	45,399	45,969	53,551	79,025	90,809
Liverpool and London and Globe	182,095	197,346	191,225	211,322	186,918	163,439
Guardian, London	37,222	43,490	43,649	46,266	41,150	35,986
Royal, Liverpool	99,600	97,257	100,543	110,823	110,980	106,687

NEW YORK CITY FIRE INSURANCE PREMIUMS—*Cont.*

NAME OF COMPANY.	1887.	1886.	1885.	1884.	1883.	1882.
	$	$	$	$	$	$
Great Britain—Cont.						
Queen, Liverpool	30,065	36,517	32,356	33,277	29,146	29,794
Imperial, London	54,230	45,660	34,423	39,716	42,724	27,050
Northern, London	35,768	23,837	27,325	26,211	23,339	27,030
Commercial Union, London	60,613	71,078	90,022	94,251	93,198	79,044
Lion, London	10,122	14,249	14,291	18,998	17,062	15,911
Fire Association, London	25,157	26,395	26,422	30,619	38,680	24,390
Lancashire, Manchester	57,796	57,314	52,126	44,791	41,311	42,044
Phœnix, London	46,407	57,063	59,139	55,918	50,043	31,603
London Assurance Cor., London	26,272	23,666	29,366	27,401	29,957	29,002
Scottish Union and National	24,266	25,878	17,712	19,568	17,601	15,011
London and Lancashire, Liverpool	36,286	34,414	43,169	38,247	49,081	55,900
Norwich Union, Norwich	30,121	31,485	34,057	43,067	41,536	32,667
City of London, London	29,450	30,099	31,143	30,931	29,260	28,393
London and Provincial, London	------	------	22,764	25,277	38,259	27,660
Standard, London	------	------	------	------	38,159	24,191
Sun, London	27,908	31,701	36,418	27,411	32,938	------
Canada.						
British America	11,765	8,159	7,181	7,595	6,856	16,133
Western Assurance	13,237	17,738	17,322	15,678	13,570	15,056
Germany.						
Hamburg-Bremen	32,445	35,094	35,570	33,255	28,619	19,756
Transatlantic	8,926	8,134	8,778	9,642	8,569	10,473
North German	------	------	------	12,380	11 404	12,159
Hamburg-Magdeburg	------	------	------	------	------	2,945
France.						
La Confiance	------	------	------	------	------	35,257
Metropole	------	------	------	------	------	23,067
City companies	1,780,697	1,680,070	1,656,098	1,696,834	1,579,247	1,504,818
Other companies	1,674,490	1,688,681	1,688,971	1,807,947	2,694,828	1,617,902
Totals	3,455,187	3,368,751	3,345,069	3,504,781	4,274,075	3,122,720

Over a Century Old.

Two burly farmers started out from Middleton the other day to see the sights in the Hub. After landing at the Eastern depot the couple took a carriage for the Boston Museum, where they made a stay of over an hour, taking in the curiosities.

The ruddy-faced pair of rurals soon became the centre of attraction. Manager Seymour pointed them out to the visitors.

"Now, that's a pretty sight, isn't it?" said Mr. Seymour.

The couple roamed up and down the main hall arm in arm, gazing at the silent portraits and statues, and whispering to each other mutual notes of admiration.

Then the pair inquired for the wax figures, and on being told that they were up three flights a consultation was held. Then one of the jolly farmers sat down on a stool, while the other ran upstairs with the attendant to view the show.

"You see," said the former, as he steadied himself on the stool and leaned upon his stout cane, "I ain't so spry as I used to be eighty years ago," and the man bubbled over with laughter.

"What!" remarked a bystander, "in the name of heaven, how old are you?"

"Well, I'm turned 106 years old, and if I live until the fifteenth of January next I shall be 107. That's so, and my boy can tell you it's true."

"Say, Mister, how old is the boy?"

"Oh, he's only seventy, but he's a pretty fair boy for one so young."

At this moment the septuagenarian "boy" came down stairs on a dead run, joined in conversation with his centenarian "dad" and laughingly replied to the numerous questions of the crowd.

"I'm a farmer," said the septuagenarian, "and have lived nineteen years at Middleton. I have been thirty-three years altogether in Massachusetts. Oh, no, I wasn't born in the States. Our homestead was at Dunham, Canada East. That's where my father was born and where all the family was reared. There were fourteen of us, boys and girls, but there's only seven of us living. Let me see, Charles is the oldest boy and he lives in Canada still; he's seventy-eight, but he works on his farm just as usual. Then there's Mitchell, John—that's me—Francis, William, Bosworth and Joseph, who is the youngest and is fifty years of age. He's a police officer at Haverhill. Francis is a blacksmith at Dubuque City, Ia."

"Have you any family?" was asked.

"Well, now I ain't ashamed to say that I've had my pile of boys and girls. Reckoning my children, grand children and great-grandchildren, there's over eighty of us. That's a good showing, I think."

"What's your father's name?"

"Charles King, and we sometimes call him King Charles."

This tickled the old man and he smiled at the joke.

Charles King is still a British subject. He fought in the war of 1812 on the British side, being captured by a press gang and forced to the front. He is in good health, though somewhat feeble in his limbs. He gets about easily, but is soon fatigued. His eyesight is good and he has never worn spectacles in his life. His hearing is poor, but his perceptions are keen and active. He never learned to read, but has a good memory for events and likes to talk of old times with his son, who has taken full charge of the old man and accompanies him everywhere, except in his short walks near home.

"I let him go out for a little exercise," said the boy, "but of course we wouldn't let him come to Boston alone."

The centenarian listened to his boy's talk, and frequently put in his own oar.

"I don't try to do any work now. I eat very little and I don't drink any coffee or tea—only cold water or milk. I take a little meat, but not much. Yes, I like a smoke, and generally carry my pipe with me. I used to drink a little wine when I was a young man, but I never take intoxicating liquors now because I don't like them."

"Now, father, we must get along," said the boy, and the old man jumped nimbly from his seat and started for the stairs leading from the hall of the museum to the street. Arm in arm with his boy he went down, stepped into the carriage and was driven off on his tour through the city.

"King Charles" hopes to visit Boston again on his next birthday.—*Boston Globe.*

Hirsch Harris, who died at his home No. 252 Adams street, Brooklyn, on Wednesday, at the great age of 109, was buried yesterday in the Washington Cemetery at Gravesend, L. I. He did not come to this country from his native Poland until he was seventy-two years old, but he lived here thirty-seven years. His birthplace was at Pyatoskowi, near Warsaw, and he was one of twenty-one children. In 1806 he was married, and his wife is still living in Brooklyn at the age of ninety-nine. When Napoleon was on the march to Moscow in 1812, eight of his brothers were conscripted, but Hirsch was warned while returning from work, and hid himself, his wife and child and escaped. He saw Napoleon ride through the village, however, and up till a year ago was in the habit of describing his appearance; then his memory failed.

In 1815 he engaged in manufacturing kummel, and continued in the business until he had made considerable money. In 1850 he emigrated to this country, and engaged in the same business, the liquor being popular among Hebrews of his race. Up to five years ago he was active in managing his affairs, but for the last few years his faculties failed and he was bowed down with age. Owing to his venerable appearance and his good standing in the synagogue, he was known to his neighbors as Rabbi Hirsch. The question of his age has been authoritatively settled by a search of the records of his native town. It is tradition there that his grandfather died at the age of 111. The old man left a son, Lewis Harris, of Brooklyn, aged fifty-five, and three daughters in San Francisco. He also left twenty-three great grandchildren. His death was due simply to old age, and the severe weather of the last few weeks. He used stimulants and snuff and smoked, but never to excess. In his long life he was never seriously ill. About three years ago he had a severe fall, but recovered to a great degree. Mrs. Harris is as active as one half her age, save for rheumatism.

The funeral was attended by many of the leading Hebrews of the city.—*New York Tribune, July* 30.

American Life Tables and the Census.

The following article was prepared especially for THE INSURANCE YEAR BOOK, published by THE SPECTATOR Company, for the issue of 1887. We reprint it in these columns for the benefit of those of our readers who do not see THE YEAR BOOK.

THE INSURANCE YEAR BOOK for 1885, besides other tables, gave on page 139 the Expectations of Life, based on the *experience of lives insured* in thirty American offices. This is supplemented in the present issue by *American Life Tables, from Combinations of the United States Census.**

Let us first observe that the climate of the United States is subject to wider extremes of winter and summer temperature than that of Europe. A similar contrast prevails in the temperatures of day and night. Here the atmosphere is comparatively dry, while the air of Western Europe is rendered moist by the Gulf Stream.

On the other hand, climatic variations in the temperate zone are but intermediate between the much wider extremes of the Polar regions and the alluvial and zymotic influences of the torrid zone. In this respect the United States occupy by far the most desirable and salubrious portion of the Western continent. The civil and industrial conditions in America are more favorable to longevity than in the old world; education and opulence are more generally diffused, and the oppressive burden of standing armies is not required. Besides other favorable conditions, life is here attended by the best medical skill and greater abundance of its comforts, as Atkinson and other statisticians have strikingly demonstrated. With all these various influences, what is the resulting standard of human life? From vital statistics in the Colonial period, collected by Dr. Styles, president of Yale College, in 1761, the doubling period was found to be about twenty-five years, implying a three per cent annual increase of the population. But Dr. Benjamin Franklin held that the time

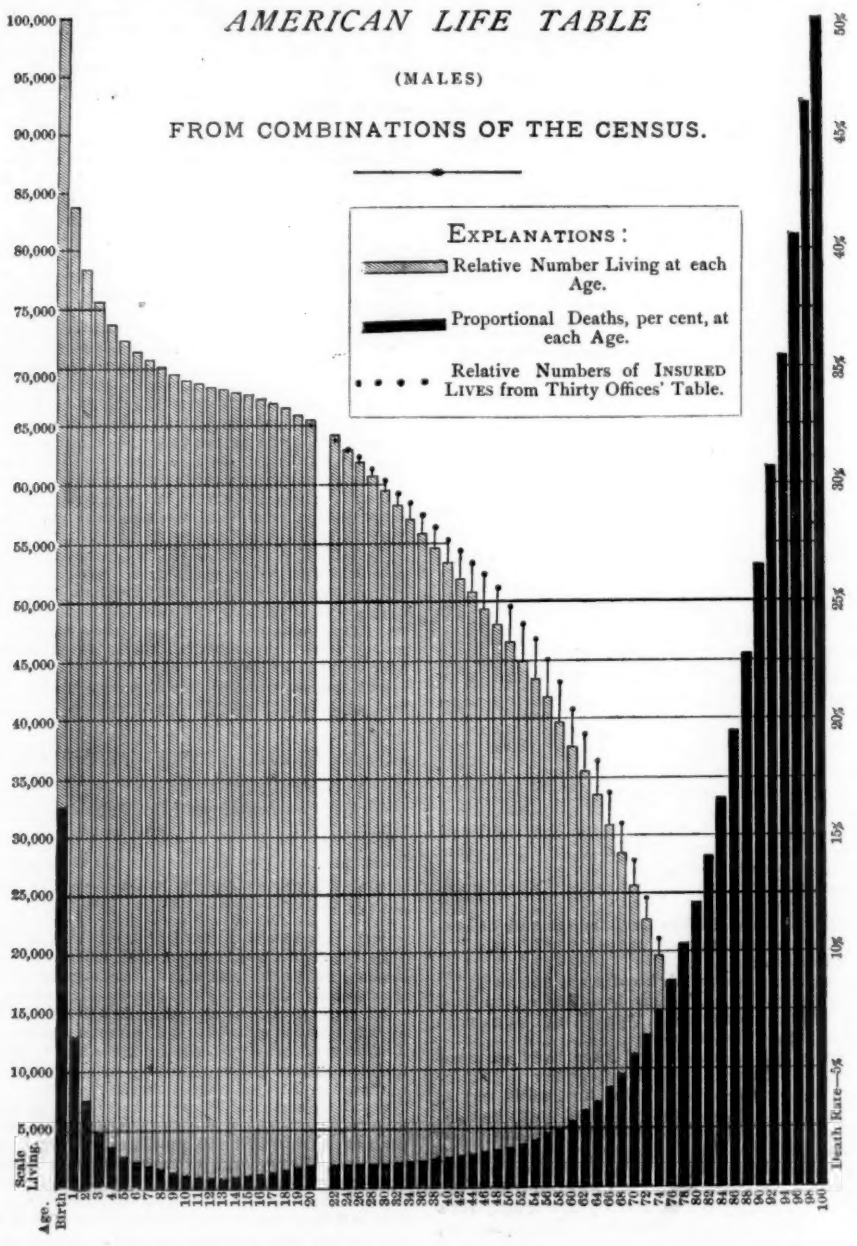
* SYSTEM AND TABLES OF LIFE INSURANCE. A treatise developed from the experience and records of thirty American life offices, under the direction of a committee of actuaries, by LEVI W. MEECH, actuary in charge. REVISED EDITION OF 1886, WITH AMERICAN LIFE TABLES, FROM COMBINATIONS OF THE CENSUS.

for an accurate determination of the length of life had not then arrived. "A table of mortality is a table of the probabilities of human life." In the writings of Dr. Price, whom Franklin had consulted in London, it was repeatedly shown that the life table must represent "a stationary population," where the yearly births and deaths are equal, and every vacancy by death is just filled by a recruit from the age below. The subject was further investigated in the treatise of Milne, who published the celebrated Carlisle Table in 1815.

The formation of life tables, as Laplace happily observed, demands a very great number of vital statistics continued through the whole course of life. And the precision of the results will augment as the data increase to greater numbers, so that *the life table represents accurately the true law of mortality, when its statistics are accurate and their number infinite.* This high precision of theory has proved very difficult to attain in practice for the want of adequate statistics. Some of the principal sources of error, including misstatement of ages, have been described in the official publications of the census. For illustration, from the earliest computations, the expectation of life at the common age of thirty years was found by Dr. Wigglesworth to be 30 3-10 or 30.3 years; by Dr. J. I. Bowditch, 32.2 years; by Prof. McCay, for Baltimore, 29.0 years; by Prof. Gill, for insured lives, 33.1 years; Homans, for insured lives, 35.3 years; and by Elliott, 32.5 years. In like manner, at the common age of eighty years, the expectation of life, according to Dr. Wigglesworth, was 5.9 years; J. I. Bowditch, 5.0 years; Prof. McCay, 7.1 years; Prof. Gill, 4.8 years; Homans, 4.4 years, and Elliott, 6.0 years. The several results appear to resemble the discordant determinations of the sun's parallax. With perhaps one exception, all the authors were understood to regard their results as preparatory to more correct investigations in the future.

In the great uncertainty prevailing up to that time respecting the law of mortality, the Chamber of Life Insurance in New York appointed a committee, and arranged in 1874 for a general collection of mortality experience. Owing to the effects of selection, the first statistics had proved very discordant, the Actuaries' Table in common use was entirely foreign, and the experience table of Mr. Homans was based chiefly, as he explained, on limited experience between thirty and sixty years of age. In arranging the new collection, some desired only to learn how far the two life tables mentioned would agree with more extensive statistics; but the majority preferred a general investigation, including amounts as well as lives, medical and climatic statistics, and the preparation of tables for practical use. During the next six years the full programme was completed on the basis of more than a million of policies or lives, and more than a hundred millions of dollars of death claims. A full sketch of the history, together with the methods and results, will be found in the work mentioned at the beginning of this article.

The design of the Chamber of Life Insurance was fully accomplished, so far as relates to insured lives. It is somewhat remarkable that, since the subject engaged Dr. Franklin's attention, more than a century should elapse before an authentic determination could be obtained under condi-



tions of full verification and permanence. In the meantime, the United States census of 1880 furnished the statistics which verified the present table of mortality for the general population. And thus within the past six years, two standard life tables have become available for practical use, under conditions of full verification and permanence. In the accompanying diagram the higher dotted curve of insured lives, after the age of twenty-four, illustrates the force of medical "selection," which is proved by the researches of T. B. Sprague and Mr. Chatham to vary according to the age of entry. In the Expectations of Life, "selection" appears under another aspect; since, at the age of fifty, the values are here singularly equal, and English tables present the same feature:

EXPECTATION OF LIFE. MALES.

AGE.	American Table from the Census.	Thirty American Offices.	British Annuities.	Twenty Offices Hm.	English Life No. 3.	Gotha Office.
20	40.9	43 1	....	42.1	39.5	42.2
30	34.5	35 9	32.3	34.7	32.7	34.7
40	27.9	28.5	26.2	27.4	26.1	26.9
50	**21.2**	**21.2**	**20.3**	**20.3**	19.5	19.4
60	14.9	14.6	14.4	13 8	13.5	12.9
70	9.5	9.0	9.1	8.5	8.5	7.8
80	5.4	4 9	5.6	4.7	4.9	4 2

Whether owing to climatic influences or to more favorable industrial conditions, the third and fifth columns here indicate a year's difference under the age of sixty, so that those insured in American life offices for the most part will live to pay one more annual premium. And the difference between the second and sixth columns representing similar census results, are still more favorable to longevity in America. Hence the effects from the various sanitary causes before mentioned are not transient or superficial, but are deeply traced in the vital statistics.

AMERICAN LIFE TABLES. FROM COMBINATIONS OF THE CENSUS.

AGE.	MALES. WHITE POPULATION.				FEMALES. WHITE POPULATION.			
	Number Living.	Annual Deaths.	Proportion Dying.	Expectation of Life. Years.	Number Living.	Annual Deaths.	Proportion Dying.	Expectation of Life. Yrs.
0	100,000	16,195	.161950	41 01	100,000	13,430	.134300	42.91
2	78,431	2,812	.035854	50.08	81,248	2,838	.034930	50.64
4	73,840	1,308	.017714	51.14	76,551	1,320	.017244	51 69
6	71,552	773	.010805	50.74	74.556	656	.008799	51.05
8	70,131	536	.007643	49.75	73.248	634	.008656	49.94
10	69,160	352	.005090	48.44	71,998	584	.007833	48.79
12	68,494	291	.004242	46.90	70,985	284	.004001	47 47
14	67,921	290	.004269	45.28	70,498	204	.002894	45.80
16	67,310	365	.005424	43.69	69,976	397	.005673	44.13
18	66,517	507	.007622	42.20	69,023	568	.008229	42.72
20	65,436	599	.009154	40.87	67,864	597	.008797	41 44
22	64,228	607	.009449	39 63	66,650	636	.009543	40.17
24	63,017	603	.009570	38 37	65,320	697	.010671	38.97
26	61,813	600	.009706	37.09	63,927	695	.010872	37 80
28	60,614	599	.009882	35 81	62,551	677	.010823	36.61
30	59.417	599	.010083	34.51	61,204	669	.010931	35 39
32	58,218	601	.010322	33.20	59,865	670	.011192	34.16
34	57,014	605	.010613	31.88	58,523	682	.011654	32 92
36	55,800	612	.010967	30 55	57,144	698	.012215	31.69
38	54.571	622	.011399	29 22	55.748	699	.012539	30.46
40	53.321	634	.011888	27.88	54,350	664	.012217	29 22
42	52,044	651	.012509	26.54	53,041	640	.012066	27.91
44	50,732	672	.013246	25.20	51,772	628	.012130	26.57
46	49.375	697	.014116	23 86	50,520	630	.012470	25.21
48	47.966	728	.015177	22.53	49.258	634	.012871	23.83
50	46,492	764	.016433	21.22	47,984	658	.013713	22.43
52	44.943	807	.017956	19.92	46,662	689	.014766	21.04
54	43.305	856	.019766	18.63	45.258	739	.016329	19.66
56	41,566	913	.021964	17.37	43,756	790	.018055	18.30
58	39,711	975	.024552	16.13	42,142	862	.020455	16.96
60	37,727	1,044	.027672	14.93	40,389	929	.023001	15.66
62	35,603	1,117	.031374	13.76	38,495	978	.025406	14.38
64	33.329	1,194	.035825	12.63	36,471	1,104	.030271	13.12
66	30,901	1,273	.041198	11.54	34,201	1,209	.035350	11.92
68	28,319	1,346	.047531	10.50	31,722	1,326	.041801	10.77
70	25.593	1,410	.055093	9.51	29,018	1,433	.049383	9.68
72	22,747	1,459	.064140	8.58	26,123	1,504	.057574	8.65
74	19,815	1,483	.074842	7.70	23,068	1,616	.070054	7.66
76	16,850	1,474	.087479	6.88	19,786	1,682	.085010	6.76
78	13,920	1,427	.102513	6.11	16,409	1,684	.102627	5.95
80	11,107	1,335	.120194	5.41	13,010	1,646	.126518	5.24
82	8,500	1,198	.140941	4.77	9,773	1,445	.147856	4.64
84	6,188	1,022	.165159	4.18	7,010	1,200	.171184	4.09
86	4,242	821	.193542	3.65	4,726	953	.201650	3.59
88	2,706	612	.226163	3.18	2,957	686	.231992	3.16
90	1,582	417	.263591	2.76	1,708	454	.265808	2.78
92	834	255	.305755	2 38	898	272	.302895	2.44
94	388	137	.353093	2 06	423	146	.345154	2.14
96	155	63	.406452	1.78	176	69	.392046	1.88
98	52	24	.461538	1.54	63	28	.444444	1.64
100	14	7	.500000	1.35	19	9	.473684	1.44
102	3	2	.666666	1.11	5	3	.600000	1.10

Calcutta's Water Supply.

A SUPPLY of pure water is a matter of the first importance to any community, and is much more so in tropical climates. In 1862 the first serious attempt was made to put the water supply of Calcutta on a proper footing. The scheme then proposed was for filtering and distributing 3,000,000 gallons per day of Hooghly water. Since then the requirements of the corporation have gone on increasing to such an extent that lately extensive additions have been made to the water supply. The commissioners require to provide water for 680,000 people. The new extension works just added consist of a new engine-house at Pulta, containing four sets of compound engines, of 175 horse-power each, pumping into two settling tanks, 2000 feet long by 258 feet wide and 18 feet deep. Favored by the low rate for which iron pipes were contracted, and the experience with the 42-inch main, the new main has been completed in a most satisfactory manner and at a very moderate cost. The pipes were supplied by Cochrane, Grove & Co., and the main laid by the engineering department of the municipality. This work involved the handling of 18,342 tons of iron pipes. The tropical rains at one season, and the excessive heat of the sun's rays at another portion of the year, greatly adds to the difficulties experienced in laying pipes of large dimensions. The work was completed in 326 working days, and formally inaugurated by the Governor-General on March 20, 1886. The new main will convey about 12,000,000 gallons per 24 hours by gravity, but its capacity can be augmented to 24,000,000 gallons by putting on pressure at the head works. The engines and pumps were constructed by Fawcett, Preston & Co., Liverpool.

The engines are of the direct-acting vertical compound intermediate receiver type, with cranks at right angles. The diameter of the high-pressure cylinder is twenty-seven inches, and of the low-pressure cylinder forty-five inches, both being arranged for a stroke of forty-eight inches. Both cylinders are fitted with piston valves, and the high-pressure cylinder is provided with a separate expansion valve working inside the main valve, arranged so that the grade of expansion can be readily altered while the engine is at work, by partly rotating the expansion valve spindle. The crank shaft is of mild steel, and is fitted with a heavy fly-wheel in the centre of its length. The main pumps, of which there are two to each engine, are placed one under each cylinder and are driven direct by side rods from the engine crosshead. The surface condenser is placed in the suction main, and is arranged so that the whole of the water pumped by the engines acts as the cooling medium. The main pumps are on the piston and plunger plan, viz., single on the suction and double acting on the delivery side of the pump, and are designed to lift 16,500,000 gallons forty feet high in ten hours. The pumps, together with their valve boxes and connections, are supported on massive girders built into the brickwork of the pump chamber; these girders simply take the weight of the machinery, the stresses in working being taken up in the engines and pumps themselves. Six cylindrical double-flued boilers, seven feet in diameter by twenty-eight feet long, are being supplied for generating steam for the above engines. The boilers are of mild steel throughout, and are capable of working at a pressure of ninety pounds per square inch.—*Mechanical World, London.*

How to Use Oil Stoves.

OIL fires and oil stove accidents have their worst features from ignorance of the persons using them. Pieces of woolen carpet should be kept near the stove; with these the flames can be smothered. Do not try to put out an oil fire with water. Smother the fire with rough cloths or carpets, and beat it back if it tries to spread. Sand or fine ashes answer well for soaking up oil and preventing it from spreading. We repeat, never use poor oil in a stove. Always get one with a high fire-test. Keep the font full. Keep the stove clean, especially about the wicks and burners. When a wick sticks, take out the burner, get hold of both ends of the wick, and after dusting both sides of the wick with finely sifted coal ashes, pull it back and forth till the inside of the tube is polished; then take out any dents in the tube which may be found opposite the ratchet-wheels. Never move a stove when lighted. Never move a stove when it has oil in it.—*The Metal Worker.*

—The fall meeting of the New England Water-works Association will take place on September 14. An excursion to Lake Winnepesaukee has been arranged, and members are particularly requested to invite ladies to accompany them. The members and their guests will meet at the station of the Boston and Maine Railroad at Boston, in time for the train leaving at 8.30 A. M., and will reach the city upon their return at 8 P. M. Tickets, which will be $4 each, and will include dinner served on the boat, may be secured at the Boston station on the day of the excursion. A short business meeting will be held on the boat for the consideration of applications for membership.

MERE MENTION.

—The Review of London notices the death, on August 15, of a Welsh woman 107 years old.

—Montreal underwriters are clamoring for a reorganization of the fire department of that city.

—The Detroit Board of Underwriters has increased rates on manufactories using oil for fuel.

—The grand jury at New Orleans has recommended the immediate revival of the system of fire wardens.

—The fire in the Calumet and Hecla mine is reported as being under control, if not entirely extinguished.

—Creditors of the defunct Monarch of Des Moines, with claims of $134,000, will have $3,415.67 to divide among themselves.

—The building of the Germania Life at Newark, N. J., has been bought by the Fidelity and Trust Company of New Jersey.

—The Northwestern National Fire Insurance Company of Milwaukee has withdrawn from the Chicago Underwriters Association.

—We have received from Insurance Commissioner Elisha W. Bucklin of Rhode Island a bound copy of his report for the year 1886.

—A telegram from Koehler, Mich., dated September 2, reported terrible forest fires as raging in that vicinity. No rain had fallen since July 5.

—Mayhew Plater has been appointed secretary of the Potomac Insurance Company of Washington, D. C., succeeding Jas. W. Deeble, deceased.

—During the week ending September 2, the Mutual Life Insurance Company paid death claims amounting to $62,918.42, and total endowments of $13,338.99.

—H. B. Bacon of Marquette, Mich., has been appointed assistant manager of agencies of the Washington Life for the States of Wisconsin, Michigan and Indiana.

—John H. Taylor, secretary of the Metropolitan Plate Glass Insurance Company of New York, died on August 31 at his residence in Brooklyn at the age of forty years.

—The English and Scottish Fire Insurance Company (limited) has been registered in London. It proposes to insure against loss to property by fire, storm or accident. The capital will be $500,000.

—Attention is called to the advertisement on another page for a superintendent of agencies for a Western assessment life insurance company. A good chance is offered to a competent and active man.

—At Lebanon, Ky., on August 29, fourteen or fifteen buildings were destroyed by a fire which, but for lack of water, could have been easily checked in its earlier stages. The losses amount to about $75,000.

—A policy for $150,000 was, last week, written by A. B. Seeley, New England agent of the American Steamboiler Insurance Company, on the Washburn & Moen Manufacturing Company's works at Worcester, Mass.

—Nineteeen suits for damages, aggregating $127,000 in amount, have already been brought in the Circuit Court at Peoria, Ill., against the Toledo, Peoria and Western Railroad on account of the Chatsworth disaster.

—The clerks of the Metropolitan Plate Glass Insurance Company have offered to do all the work for the rest of the year of Secretary Taylor, who died last week, that his wife may have the benefit of his salary during that time.

—The new American Mutual Liability Insurance Company of Boston expects to begin business shortly. The officers are: President, Wm. C. Lovering; vice-president and manager, Josiah B. Bartlett; secretary, S. A. Williams.

—Thomas B. Jones, president of the Nassau Fire Insurance Company of Brooklyn, died at Northport, L. I., on September 5, at the age of seventy-seven. On July 29 Mr. Jones had a stroke of paralysis and never afterward rallied.

—Of The Insurance Year Book for 1887, published by THE SPECTATOR Company, Walter W. Haskell, general agent for the Pacific coast of the Travelers of Hartford, writes: "I could not get along without it, as it is a very complete work."

—W. D. Parks, insurance agent of Washington, Kan., writes: "I received my copy of The Insurance Year Book some time ago and have given it a very careful examination. Find it excels by far anything I have yet seen in that line and is a very valuable book."

—During the three years 1884-86 there were, according to The Chronicle Fire Tables, 1090 fires in dry-goods stores in this country. The total losses were $9,766,306, and the insurance loss $7,121,580. The chief reported cause of fire, apart from exposure, was gas jets.

—W. W. Scott has resigned the position of Pittsburgh manager for the Massachusetts Mutual Life to become special agent for the New York Life, with headquarters at Pittsburgh. He will be succeeded in the management of the Massachusetts Mutual by Goodchild & Welsh.

—Nothing new has transpired during the past week concerning the affairs of the Phenix Insurance Company. The work of reorganization is going on, and it is understood that the managers are looking about for a competent insurance man to take the position of vice-president.

—At Rochester, N. Y., September 2, while John Kelly, a boiler examiner, was in the second section of a double boiler in a slaughter house, the other section exploded, blowing the building to pieces and killing Kelly, whose body was only taken out after seven hours' work.

—The report published in our issue of September 1, that the Boatmans Fire and Marine of Pittsburgh had withdrawn from Ohio, proves to be false. Secretary H. H. Schenck writes that the company has merely withdrawn from Cincinnati, finding business in that city unprofitable.

—"Is there any of the surplus layin' around loose here?" asked a tramp as he bobbed into the Mutual Life office. "No, but we've got a loaded premium and—" "Don't shoot," yelled the tramp, as he went down stairs three steps at a time, followed by the big policeman.—*Weekly Statement.*

—By the crossing of an electric light and a telephone wire in South Troy, N. Y., on August 26, the cupola of the telephone company's building was set on fire and nearly all the company's wires completely burned out. The flames were extinguished by the fire department after about half an hour's work.

—At a threshing bee at the farm of Lyman Curtis, near Flint, Mich., on August 30, the boiler of a steam thresher exploded, killing one man, fatally injuring two and badly scalding eight other persons, among them three young women. The explosion was followed by a fire which destroyed several large barns and the season's crop.

—Atlanta, Ga., with 60,000 inhabitants, had in 1886 only 142 alarms of fire; the damage to buildings exceeded $1000 in only two instances, and but once did the loss on contents amount to more than this sum. It is a significant fact that the city has a rigid ordinance upon the subject of carelessness or negligence in guarding against fires.

—The Insurance Year Book for the present year, one of the annual compilations of THE SPECTATOR Company, is without doubt the very best edition ever published. There is so much embraced in the book that insurance men have constant occasion to refer to it, and The Year Book has become an acknowledged necessity.—*Insurance World.*

—At Bradford, Pa., on August 30, a twenty horse-power boiler in Kane & Ryan's boiler shop exploded, killing James A. Kane, whose body was blown into a narrow aperture between two buildings with such force that axes had to be used to release it. Half of the boiler was blown through the end of a warehouse and up through the roof, landing 400 feet away.

—Incendiaries have been extraordinarily busy during the past week in all parts of the country, though fortunately the fires which they started have in a few instances only proved serious. There is nothing which will check the spread of this cowardly crime against the community but prompt and severe punishment. To the incendiary absolutely no mercy should be shown.

—The increase of insanity in Berlin is noteworthy. The reports of the city's insane asylum, at Dalldorf, show that the institution had March 31, 1883, 1637 inmates (812 males, 825 females); March 31, 1884, 1799 (890 males, 909 females); March 31, 1885, 1909 (957 males, 952 females); March 31, 1886, 2845 (1466 males, 1379 females). A very large percentage suffer from alcoholism.

—The Union, Vienna, gives a report for 1886 of an Austrian marriage endowment association called the Gisela Union. Its membership increased during 1886 from 3792 to 6631 and the endowments insured, which amounted to 2,516,500 florins December 31, 1885, increased to 5,025,500 florins December 31, 1886. The amounts received for premiums in 1886 were 232,516 florins; dues, 6390 florins, and interest,

8630 florins. The premium reserve was 342,266 florins December 31, 1886, of which amount 293,180 florins were in securities deposited in the Austro-Hungarian bank, and there were 17,464 florins cash in the Austria post-office savings bank.

—An attempt was made August 29 to wreck a train on the Wabash Railway by burning a bridge over a culvert about a mile east of Lafayette, Ind. The fire had gained so little headway when the train reached the spot, that by putting on steam the engineer took it safely across. The would-be train wrecker, who had been hiding near by, was seen to run into the woods but escaped.

—According to the record kept by F. C. Livingston of Manchester, the fire losses in New Hampshire during August amounted to $178,462, due to fifteen fires, against eleven fires and $15,000 losses for the same month last year. The total insurance was $85,687. The greatest loss by a single fire was $139,300. The total loss for the year 1887 to September 1 is computed at $1,279,118, on which insurance amounting to $691,556 was paid.

—Kingston, N. Y., pays the water-works company $9800 a year for serving 245 fire hydrants, or $40 a year for each. Elmira pays $11,000 a year for 229 hydrants, or $48 each. Oneida pays $55 a year each for 73 hydrants, Johnstown $55 for 65, Geneva $58 for 30, Auburn $59 for 290, Jamestown $60 for 100, Schenectady $75 for 138, West Troy $100 for 100 and Dunkirk $126 for 103. The average for 22 cities and towns in New York State is $46.

—Philadelphia, New York and Boston capitalists, with a cash capital of $3,000,000, will begin the erection of a sugar refinery in Philadelphia, says The Record, in a few weeks, which, when completed, will be the largest in the United States, covering more space even than the great Franklin Sugar Refinery. The location of the refinery will be on Delaware avenue, south of Walnut street, it having been already purchased for the new concern.

—Chief Engineer Webster of Indianapolis, Ind., expresses his surprise that more fires do not occur in that city from defective flues, of which he reports a great number. He says that while working at a fire last week in a residence in the northeast part of the city, he was frightened when he inspected the chimneys of houses in that vicinity, and claims that eight out of ten are in such a condition that their use should be abandoned until they are repaired.

—J. J. Albert, a Louisville (Ky.) barber, had $3000 insurance against "disability" in the Order of Chosen Friends. His hands became so paralyzed that he could no longer use a razor, but the order declined to pay his claim for the insurance. In this refusal it has just been upheld by Judge Barr of the United States Circuit Court, upon the ground that his disability was not such as to prevent him from earning a livelihood. It was shown that since Albert became incapacitated as a barber, he had kept a restaurant and acted as clerk in a store.

—The Standard says that "the Prudential Fire Association, the Boston member of the prudential syndicate, which has been in process of formation during the summer, is about ready to begin business. The officials have been selected, though not installed, and the entire capital has been paid in. It is the intention of the company to employ one or two practical insurance men to manage the business. The New York and Philadelphia branches of the syndicate are ready to commence business, the latter expecting to begin about the middle of September, and the whole five will probably be ready by the last of the month."

—Hornets are notoriously unpleasant insects to meddle with, but it is doubtful if ever before man paid so dearly for troubling them as farmer Fredericks of Honey Creek, near Quincy, Ill., did the other day. While ploughing in his field, he discovered a hornet's nest and promptly set fire to it, retiring to a safe distance to enjoy a quiet view of the holocaust. Not content with consuming the nest, however, the fire spread in the dry grass and finally reached the barn, which was burned to the ground, and the farmer's son, who had gone into the blazing building in order to save what part of the contents he might, lost his life in the flames.

—The return for the week ending August 6, shows that the deaths registered during that period in twenty-eight great towns of England and Wales correspond to an annual rate of 22.9 per 1000 of their aggregate population, which is estimated at 9,245,099 persons in the middle of this year. The six lowest rates were at Brighton, Birkenhead, Halifax, Bristol, Cardiff and Blackburn. In London 3317 births and 1759 deaths were registered. Allowance being made for increase of population, the births were 310 below, while the deaths exceeded by twelve, the average numbers in the corresponding weeks of the past ten years. The annual death rate per 1000 from all causes, which had increased in the six preceding weeks from 15.9 to 24.8, declined last week to 21.8. During the first five weeks of the current quarter the death rate averaged 22.6 per 1000, and exceeded by 1.1 the mean rate in the corresponding period of the ten years 1877–86. In Greater London 3036 births and 2222 deaths were registered, corresponding to annual rates of 29.2 and 21.4 per 1000 of the population.—*The Insurance Post.*

—Speaking of the underground conduit system for electric wires, Professor John P. Barrett, city electrician of Chicago, said the other day to a reporter of The St. Paul Pioneer Press: "If it is a question of feasibility and practicability, there is no doubt at all of the success of the underground system. I am lenient towards my babies, and this is one of them. The system works all right in Chicago. We have about 3300 miles of wire under ground. This embraces all classes—telephone, fire alarm, Baltimore and Ohio, Western Union, Bankers and Merchants, and all wires crossing streets and alleys. The system has been tried for eleven years, consequently there is not much guesswork about it. When there is a long distance of telephone wires under ground the transmission of sound is somewhat retarded, but this retardation can be entirely eradicated. All other wires except telephone are improved by being under ground. We have taken out of the heart of the city about 1100 poles, and you can hardly realize the improvement it makes in the appearance of the city."

—Several Eastern insurance companies having instructed their Pittsburgh agents to discontinue writing on manufacturing risks on the south side of Pittsburgh, there has been driven a truth home to the owners of these risks that will probably have the effect of remedying the cause of the trouble. The Monongahela Water Company, which supplies that section of the city, is a private corporation. For years it has been a well-known fact that the great difficulty experienced by the fire department in extinguishing fires there was a scarcity of water at the time most needed, *viz.*, when the attachments were first made to the plugs; by the time that the fire was under good headway, the presssure would be increased by this water company, but the mischief had then been done. After an earnest fight in councils, the mains from the city proper were extended to the south side, but potent influence upon the part of the water company has so far prevented these mains from being utilized. When the manufacturers found that it was going to be difficult to obtain insurance, they started a crusade against this water monopoly, and it now looks as if they will succeed in bringing them to terms, and insure that in the future the water supply will be ample for all purposes.—*Insurance World.*

AGENCY APPOINTMENTS.

—W. C. Prose, agent for the Mutual Life, at Edgerton, Mass.

—Robert Spencer, agent for the Vermont Life, at Taunton, Mass.

—C. T. Baird, agent for the Liberty of New York, at Louisville, Ky.

—Geo. L. Loomis, agent for the Clinton Fire, at Northampton, Mass.

—Gale & Co., agents for the Liberty of New York, at Minneapolis, Minn.

—F. B. Marshman, agent for the Mutual Insurance Company, at Lynn, Mass.

—A. J. Wright, agent for the Albany Insurance Company, at Springfield, Mass.

—William Zimmermann, agent for the Merchants of Newark, at Dunkirk, N. Y.

—H. A. Tirrell, agent for the North British and Mercantile, at Weymouth, Mass.

—W. E. Barton, general agent of the Massachusetts Mutual Life, at Denver, Col.

—N. W. Norcross & Co., agents for the Equitable Fire and Marine, at Lowell, Mass.

—H. K. Van Rensselaer & Son, agents for the Merchants of Newark, at Randolph, N. Y.

—John E. Bowen, agent for the Rhode Island Underwriters Asssociation, at Duluth, Minn.

—Goodchild & Welsh, managers for the Massachusetts Mutual Life, at Pittsburgh, Pa., succeeding W. W. Scott.

—John Wocher, agent at Indianapolis, Ind., for the British America, German-American and Detroit Fire and Marine insurance companies.

FIRE INSURANCE STOCKS AND DIVIDENDS.

New York State Companies.

NAME OF COMPANY	Par Value of Stock.	Capital Paid up.	Net Book Value of Stock Per $100, Jan. 1, 1887.	Last Dividend Declared. Date.	Last Dividend Declared. Per Ct.	Latest Sale of Stock. Date.	Latest Sale of Stock. Price (Per Cent).
Agricultural	$100	$500,000	$146.14	Jan., '87	10	--------	180
Albany	40	200,000	172.07	*July, '87	5	--------	150
American	50	400,000	275.32	*July, '87	5	Aug. 8, '87	170
American Exchange	100	200,000	112.91	*Jan., '87	4	Aug.10, '87	80
Broadway	25	200,000	270.29	*Aug., '87	6	May28, '87	193½
Buffalo German	100	200,000	440.70	*July, '87	10	July, '86	300
Citizens	20	300,000	210.81	*July, '87	3	Aug.10, '87	114½
City	70	210,000	182.91	*Aug. '87	4	Aug. 9, '87	120
Clinton	100	250,000	120 11	*July, '87	5	May 4, '87	110½
Commerce	25	200,000	188.23	†July, '87	2½	--------	136
Commonwealth	100	£300,000	107.07	----------	--	--------	---
Continental	100	1,000,000	237 49	*July, '87	7.70	Aug 24, '87	228¼
Eagle	40	300,000	320.19	*Apr., '87	7½	Aug.23, '87	250
Empire City	100	200,000	143.60	*July, '87	3½	Feb. 7, '87	150
Exchange	30	200,010	156.96	*Jan., '87	3½	June 7, '86	101½
Farragut	50	200,000	155.78	*July, '87	5	June10, '87	130
Firemens	17	204,000	131.22	*July, '87	3	Aug. 3, '87	100½
Fire Association	100	200,000	115.95	----------	--	June20, '87	90
German-American	100	1,000,000	334.43	*July, '87	10	May 25, '87	310
Germania	50	1,000,000	163 81	*July, '87	5	July 8, '87	157½
Glens Falls	10	200,000	484 33	*July, '87	5	--------	275
Globe	50	200,000	161.64	*July, '87	5	Feb. 16, '87	127½
Greenwich	25	200,000	332.45	July, '87	5	Mar.16, '87	243
Guardian	100	200,000	112 86	*Jan., '87	3	Aug 10, '87	70½
Hamilton	15	150,000	179.66	*July, '87	5	Aug. 3, '87	128
Hanover	50	1,000,000	154.09	*July, '87	5	Aug.10, '87	136½
Home	100	3,000,000	174 62	*July, '87	5	Sept. 6, '87	140
Howard	40	400,000	120.35	Jan., '87	3	June20, '87	85
Jefferson	30	200,010	238.68	*Mar., '87	5	Feb. 9, '87	135
Kings County	20	150,000	222.71	*July, '87	10	Apr. 27, '87	210
Knickerbocker	30	210,000	144 76	*July, '87	3	Apr. 20, '87	99¼
Lafayette	50	150,000	143.17	*July, '87	4	July11, '87	106
Long Island	50	300,000	116 00	*July, '87	4	July 13, '87	100½
Lloyds Plate Glass a	100	100,000	126.21	*July, '87	5	--------	140
Manuf'rs and Builders c	100	200,000	193.67	†July, '87	2	Apr. 1, '86	120
Mechanics	50	250,000	110.24	*Jan., '85	5	May 25, '87	81
Mercantile	50	200,000	110.65	*Jan., '87	2	July 6, '87	70
Merchants	50	200,000	139 19	*July, '87	3	Mar.15, '87	106
Metropolitan Plate Glass a	100	100,000	165 97	*July, '87	5	July 14, '87	165
Montauk	50	200,000	119.20	*July '87	5	May 21, '87	102
Nassau	50	200,000	190.16	*July '87	5	Mar.14, '87	150
National	37½	200,000	133.16	*July. '87	4	May 19, '87	105
New York Bowery	25	300,000	192 89	*July, '87	6	Aug. 4, '87	165
New York Equitable	35	210,000	256.15	*July, '87	5	May 11, '87	171
New York Fire	100	200,000	145.34	*Aug., '87	4	June 8 '87	95
Niagara	50	500,000	197.87	*July, '87	5	Aug. 5, '87	170
North River	25	350,000	121.98	*Apr., '87	4	May 25, '87	100
Pacific	25	200,000	281 45	*July, '87	6	June10, '87	178
Park	100	200,000	120.58	*July, '87	3½	Aug 16, '87	95
Peoples	50	200,000	132.31	*July, '87	4	Jan. 13, '86	110
Peter Cooper	20	150,000	243.84	*July, '87	6	May 11, '87	180
Phenix	50	1,000,000	90.26	*July '87	5	Aug.30, '87	65
Rochester German	50	200,000	186.31	*July, '87	3	---- --	130
Rutgers	25	200,000	183.62	*July, '87	5	May 18, '87	146
Standard	50	200,000	172.63	*July, '87	3½	May 18, '87	105
Sterling	100	350,000	103 01	Aug., '86	2½	Aug 17, '87	75
Stuyvesant	25	200,000	152.84	*July, '87	3	Aug. 3, '87	122½
Union	100	100,000	198.74	*Jan., '87	3	----------	105
United States	25	250,000	204.12	*July, '87	5	Aug.19, '87	150
Westchester	10	300,000	203.50	*July, '87	5	Sept. 1, '87	150
Williamsburgh City	50	250,000	325.29	*July, '87	10	May 4, '87	279

English Companies Doing Business in New York.

NAME OF COMPANY.	Par Value of Stock.	Amount Paid Up Per Share.	e Latest Price. £	s.	d.
City of London	£10	£1	--	10	--
Commercial Union	50	5	23	--	--
Fire Insurance Association	10	1	--	12	6
Guardian	100	50	76	--	--
Imperial Fire	100	25	161	--	--
Lancashire	20	2	6	2	6
Lion Fire	10	2	1	5	--
Liverpool and London and Globe	2	2	34	5	--
London Assurance	25	12½	53	--	--
London and Lancashire Fire	25	2½	8	8	9
North British and Mercantile	65	16⅔	40	12	6
Northern	100	5	56	2	6
Norwich Union	100	12	80	--	--
Phœnix	---	--	252	--	--
Queen	10	1	3	13	9
Royal	20	3	37	17	6
Scottish Union and National	20	1	2	18	6
Sun Fire Office	--	--	450	--	--
United Fire Re-Insurance	20	3	11	5	--

Other State Companies Doing Business in New York.

NAME OF COMPANY.	Par Value of Stock.	Capital Paid up.	Net Book Value of Stock Per $100, Jan. 1, 1887	Last Dividend Declared. Date.	Last Dividend Declared. Per Ct.	f Price of Latest Sale of Stock. (Per Cent.)
Ætna, Hartford	$100	$4,000,000	$186.25	†July, '87	5	159
Amazon, Cincinnati	20	300,000	139.59	*July '87	5	103
American, Boston	100	300,000	152 36	*July, '87	3	128
American, Newark	5	600,000	250.34	*Mar. '87	5	170
American, Philadelphia	100	500,000	210.57	*Apr., '87	5	181
American Central, St. Louis	25	600,000	137.09	*July, '87	4	112
Anglo-Nevada, San Francisco	100	2,000,000	101.68	†Apr., '87	1½	113¾
Armenia, Pittsburgh	100	250,000	109.34	*Jan., '87	3	115
Atlantic F. and M., Providence	33⅓	200,000	110.02	*Jan., '87	4	100
Boatmans F. and M. Pittsburgh	50	250,000	101.77	July, '86	3	118
Boylston, Boston	100	557,200	129.79	†July, '87	3	97
California, San Francisco	100	600,000	122.10	†July, '87	3	128
Citizens, Cincinnati	20	200,000	121.05	*June, '87	4	150
Citizens, Pittsburgh	50	500,000	100.70	*Jan., '87	3	100
Citizens, St. Louis	100	200,000	193.96	*July, '87	3	125
Commercial, San Francisco	100	200,000	131.20	‡July, '87	1	126
Concordia, Milwaukee	100	200,000	131.42	†July, '87	4	125
Connecticut, Hartford	100	1,000,000	142.49	*July, '87	4	120
Detroit F. and M., Detroit	35	300,000	235.18	*July, '87	5	184¼
Eliot, Boston	100	200,000	146.55	*Apr., '87	5	125¾
Equitable F. and M., Providence	50	300,000	135.89	*July, '87	4	106
Factors and Traders, New Orleans	100	1,000,000	95.95	*July, '86	4	86
Fire Association, Philadelphia	50	500,000	267.91	*July, '87	20	672
Fire Ins. Co., County of Philadelphia	100	400,000	128.76	*July, '87	3½	140
Firemans Fund, San Francisco	100	1,000,000	134 49	†July, '87	3	145
Firemens, Baltimore	18	378,000	131.72	*July, '87	3	102¾
Firemens, Boston	100	303,000	253.62	*Apr., '87	5	191
Firemens, Dayton	20	300,000	191.64	*July, '87	4	140
Firemens, Newark	30	600,000	238.05	†July, '87	3	200
Franklin, Columbus	20	200,000	133.17	*July, '87	4	100
Franklin, Philadelphia	100	400,000	341.96	†July, '87	5	430
German, Pittsburgh	50	200,000	140.70	*July, '87	6	196
Girard F. and M., Philadelphia	100	300,000	300.83	† July, '87	6	400
Granite State, Portsmouth	100	200,000	107.88	----------	--	100
Hartford, Hartford	100	1,250,000	243.20	*July, '87	10	300
Ins. Co. of North America, Phila	10	3,000,000	184.34	*July, '87	7½	285
Ins. Co. of the State of Pa., Phila	200	200,000	156.02	*July, '87	5	250
Jersey City, Jersey City	50	200,000	130.41	*July, '87	3½	131
Louisville Underwriters, Louisville	--	300,000	162.85	*Jan., '86	5¾	---
Manuf. and Merchants, Pittsburgh	50	250,000	110.67	*July, 86	4	110
Marine, St. Louis	100	200,000	112.87	*June, '87	3	103
Mechanics, Philadelphia	25	250,000	148.84	*July, '87	4	176
Mechanics and Traders, N. Orleans	100	375,000	129.52	*July, '87	5	112
Mercantile Cleveland	100	200,000	156.47	*Ju y, '87	5	115
Mercantile Fire and Marine, Boston	100	400,000	129.29	*May '87	5	130
Merchants Providence	50	200,000	157.64	*July, '87	4	116
Meriden, Meriden	66	200,000	135.54	*July, '87	4	115
The Merchants, Newark	25	400,000	205.81	*July, '87	5	165
Michigan F. and M., Detroit	50	200,000	132.04	*July, '87	3	110
Milwaukee Mechanics, Milwaukee	10	200,000	472.55	*Jan., '87	5	---
National, Hartford	100	1,000,000	156.34	*July, '87	5	135
Neptune F. and M., Boston	100	300,000	123.74	*Apr., '87	3	93
Newark, Newark	5	250,000	227.72	Jan., '87	10	110
New Hampshire, Manchester	100	500,000	147.55	*July, '87	4	150
North American, Boston	100	200,000	130.06	*Apr., '87	3	100
Northwestern National, Milwaukee	100	600,000	145.64	*July, '87	5	154
Orient, Hartford	100	1,000,000	113.29	*July, '87	3	95
Packers and Provision Dealers, Chic.	---	250,000	110.01	----------	--	---
Pennsylvania, Phila	100	400,000	406.86	*Mar. '87	7½	506
Pennsylvania, Pittsburgh	50	200,000	110.52	*Jan., '87	2	112
Peoples, Manchester	100	250,000	107.74	*Feb., '87	3	105
Peoples, Pittsburgh	50	200,000	118.41	*July, '87	3	110
Phœnix, Hartford	100	2,000,000	151.12	†July, '87	3½	209
Prescott, Boston	100	200,000	126.21	*Apr., '87	3	100
Providence-Washington, Providence	50	400,000	128.42	*July, '87	4	110
Reading, Reading	10	250,000	147.94	*July, '87	4	145
Reliance, Philadelphia	50	300,000	198.89	*June, '87	4	169
Security, New Haven	50	200,000	150.36	*July, '87	5	120
Springfield F. and M., Springfield	100	1,000,000	167.98	*July, '87	5	185
Spring Garden, Philadelphia	50	400,000	202.78	*July, '87	8	270
St. Paul F. and M., St. Paul	100	500,000	169.73	*June '87	5	140
Sun, San Francisco	100	300,000	112.71	†July, '87	2½	100
Sun Mutual, New Orleans	100	498,972	150.85	†Apr., '87	2½	124
Teutonia, New Orleans	100	250,000	137.55	*July, '87	5	125
Traders, Chicago	100	500,000	200.60	†July, '87	2½	180
Union, Philadelphia d	5	375,000	108.24	*July, '87	2	100
Union, San Francisco	100	750,000	116.11	†July, '87	2	121
United Firemens, Philadelphia	10	300,000	124.11	*June, '87	3	160
Washington F. and M., Boston	100	1,000,000	112.78	*Apr., '87	3	100
Western, Pittsburgh	50	300,000	120.94	*July, '87	4	127

Canadian Companies Doing Business in New York.

NAME OF COMPANY.	Par Value of Stock.	Capital Paid up.	Net Book Value of Stock Per $100, Jan. 1, 1886.	Last Dividend Paid. Date.	Last Dividend Paid. Per Ct.	e Price of Latest Sale of Stock. (Per Cent.)
British America, Toronto	50	$500,000	------	*July, '87	3½	118¼
Western, Toronto	20	500,000	------	*July, '87	5	152

* Semi-annual. † Quarterly. ‡ One per cent each month. *a* Devoted exclusively to insuring plate glass against breakage. *c* The Manufacturers and Builders pays two per cent quarterly. *d* Marine only in New York State. *e* Irregular. *f* Prices below include in some instances the price asked, and not necessarily an actual sale. *g* Capital since increased to $500,000.